

Computing Maxmin
and Minmax
Strategies in 2-
player, general sum
games



Maxmin, Minmax

- Recall: maxmin for player i is strategy that maximizes worst-case payoff assuming player j tries to cause maximum harm to player i
- A minmax strategy of j against i is just such a maximum harm strategy

$$G = (\{1, 2\}, A_1 \times A_2, (u_1, u_2))$$



Maxmin, Minmax

$$G = (\{1, 2\}, A_1 \times A_2, (u_1, u_2))$$

- Define: $G' = (\{1, 2\}, A_1 \times A_2, (u_1, -u_1))$
- By definition, player 1's maxmin value is independent of the utility of player 2.
- So $\maxmin_1(G) = \maxmin_1(G')$
- G' is zero-sum, and maxmin value is equal to value in Nash equilibrium that can be solved with LP
- Similarly, can get minmax strategy

